

What is Claimed is:

1. A method for producing a soft tissue graft suitable for transplantation into a human, comprising:

a 5 sonicating said soft tissue with a solvent comprising one or more detergents in an ultrasonic cleaner at a ^{temperature} ~~temperature~~ and for a time period effective to produce cleaned soft tissue essentially free from blood deposits.

2. ~~A soft tissue graft suitable for transplantation into a human, comprising: a soft tissue graft essentially free from blood deposits, bacteria particles, virus particles and fungus particles.~~

10 ~~3.~~ A soft tissue graft suitable for transplantation into a human, comprising the cleaned soft tissue produced by the process as claimed in Claim 1.

4. ~~The soft tissue graft of Claim 2, wherein said soft tissue graft is produced by the process as claimed in Claim 1.~~

15 5. A method for producing a soft tissue graft including attached to an essentially intact bone suitable for transplantation into a human, comprising:

inducing a negative pressure mediated flow of a first solvent, said first solvent comprising one or more detergents, through an opening in a bone shaft of said essentially intact bone graft and associated soft tissue to produce a cleaned intact bone graft including associated soft tissue.

20 ~~5~~ 6. A method for producing a soft tissue graft including attached to an essentially intact bone suitable for transplantation into a human, comprising:

25 inducing a negative pressure mediated flow of a first solvent, said first solvent comprising one or more detergents, through an opening in a bone shaft of said essentially intact bone graft and associated soft tissue to produce a cleaned intact bone graft including associated soft tissue;

sonicating said essentially intact bone graft and associated soft tissue in a container with said first solvent using an ultrasonic cleaner,

wherein said inducing and said sonicating are carried out simultaneously for a time effective to produce a cleaned intact bone graft and associated soft tissues essentially free from bone marrow.

7. A method for producing a soft tissue graft optionally attached to bone suitable for transplantation into a human, comprising:

sonicating said soft tissue using an ultrasonic cleaning device with a first solvent comprising one or more detergents to produce a first cleaned soft tissue graft, and

wherein said first cleaned soft tissue is essentially free from blood deposits.

8. The method of Claim 7, further comprising:

sonicating said first cleaned soft tissue graft using an ultrasonic cleaning device with a second solvent comprising one or more members selected from the group consisting of: an antibiotic, an antimycotic and an antiviral agent, to produce a second cleaned soft tissue graft; and

sonicating said second cleaned soft tissue graft using an ultrasonic cleaning device with a third solvent comprising one or more decontaminating agents to produce a third cleaned soft tissue graft.

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The method of Claim 7, further comprising:

agitating said first cleaned soft tissue graft with a second solvent comprising one or more members selected from the group consisting of: an antibiotic, an antimycotic and an antiviral agent, to produce a second cleaned soft tissue graft; and

agitating said second cleaned soft tissue graft with a third solvent comprising one or more decontaminating agents to produce a third cleaned soft tissue graft.

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9-10. The method of Claim 8, further comprising:

sonicating said second cleaned soft tissue graft with sterile water prior to sonication with said third solvent.

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11. The method of any one of Claims 8 or 10, further comprising:

5 sonicating said third cleaned soft tissue graft with a fourth solvent comprising one or more alcohols to produce a fourth cleaned soft tissue graft.

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12. The method of Claim 11, further comprising:
washing said fourth cleaned soft tissue graft and with sterile water.

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13. The method of Claim 12, further comprising:
10 agitating said second cleaned soft tissue graft with sterile water prior to sonication with said third solvent.

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14. The method of Claims 12 or 13 further comprising:
agitating said third cleaned soft tissue graft with a fourth solvent comprising one or more alcohols to produce a fourth cleaned soft tissue graft.

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15. The method of Claim 14, further comprising washing said fourth cleaned soft tissue graft with sterile water.

16. The method of Claim 15, wherein said washing comprises one or more of soaking, sonicating, lavage and agitation.

17. The method of Claim 16, wherein said washing is conducted in a negative
20 pressure environment.

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18. The method of any one of Claims 1, 5 or 7, wherein said soft tissue graft comprises one or more members selected from the group consisting of ligament tissue, tendon tissue, periosteum, cartilage, menisci and *fascia lata* tissue.

3 19. The soft tissue graft of ^{claim} ~~any one of Claims 2 or 3~~ ², wherein said associated soft tissue comprises one or more members selected from the group consisting of ligament tissue, tendon tissue, periosteum, cartilage, menisci and *fascia lata* tissue.

5 20. A method for producing a soft tissue graft suitable for transplantation into a human, comprising:
a ^{sonicating} ~~incubating~~ said soft tissue in one or more bone cleaning compositions to produce a cleaned graft;

incubating said cleaned graft in one or more decontaminating agents to produce a decontaminated graft; and

10 incubating said decontaminated graft in water to produce soft tissue graft suitable for transplantation into a human.

21. A soft tissue graft produced by the process as claimed in claim 20, wherein said graft is essentially free from bacterial, viral and fungal contamination.

15 22. The method of claim 20, wherein said incubating comprises one or more or soaking, sonicating, lavage and agitation.

23. The method of claim 22, wherein said washing is conducted in a negative pressure environment.

24. The method of any one of claims 20 or 22, wherein said bone cleaning composition comprises:

20 i) a detergent having a functionality of the nature of a polyoxyethylene-4-lauryl ether

ii) a detergent having a functionality of the nature of oxyethylated alkylphenol, and

25 iii) water,
wherein said detergent having a functionality of the nature of a lauryl ether and said detergent having a functionality of the nature of oxyethylated alkylphenol are

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present in a weight percent ration of about 1:2, and wherein said composition does not contain a membrane stabilizer.

25. A soft tissue graft produced by the process as claimed in claim 24, wherein said graft is essentially free from bacterial, viral and fungal contamination.

5 26. A method for producing a soft tissue graft suitable for transplantation into a human, comprising:

pre-cleaning said graft with water to produce a pre-cleaned graft;

agitating said pre-cleaned graft in water optionally including one or more bone cleaning compositions to produce an agitated graft;

10 ^{sonicating}
incubating said agitated graft in one or more bone cleaning compositions to produce a cleaned graft;

incubating said cleaned graft in one or more decontaminating agents to produce a decontaminated graft;

wherein said decontaminated graft is suitable for transplantation into a human.

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~~27.~~ A soft tissue graft produced by the process as claimed in claim 1, wherein said graft is essentially free from bacterial, viral and fungal contamination.

28. A soft tissue graft produced by the process as claimed in claim 5, wherein said graft is essentially free from bacterial, viral and fungal contamination.

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~~29.~~ A soft tissue graft produced by the process as claimed in claim ⁵~~6~~, wherein said graft is essentially free from bacterial, viral and fungal contamination.

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~~30.~~ A soft tissue graft produced by the process as claimed in claim 7, wherein said graft is essentially free from bacterial, viral and fungal contamination.

31. A method for producing a soft tissue graft attached to bone suitable for transplant into a human, comprising:

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inducing a pressure mediated flow of solvent through an opening in a bone shaft of said bone, wherein said pressure mediated flow is carried out for a time effective to remove bone marrow from said bone and to remove blood deposits from said soft tissue graft, wherein said solvent is recirculated through said bone via said pressure mediated flow.

32. The method of Claim 31, wherein said pressure mediated flow of solvent is mediated at a positive pressure of 1 atmosphere or above.

33. The method of Claim 31, wherein said pressure mediated flow of solvent is mediated at a negative pressure below 1 atmosphere.

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34. A soft tissue graft attached to bone free from bone marrow elements and blood deposits and suitable for transplantation into a human, produced by the process as claimed in any one of Claims 31, 32 or 33.

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